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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/787,031	02/25/2004	Jack Nilsson	200106.3	3910

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EXAMINER	
CAO, HUEDUNG X	
ART UNIT	PAPER NUMBER
2821	

DATE MAILED: 03/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/787,031	NILSSON, JACK	
	Examiner	Art Unit	
	Huedung X. Cao	2821	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 January 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) *24-26* is/are allowed.

6)☒ Claim(s) *1-23,27,29-30,and 31* is/are rejected.

7)☒ Claim(s) *28* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-4, 9-12, 13-16, 18-23, 27, and 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over YAMAZAKI et al. (US 4,253,099).

As per claim 1, and Yamazaki teaches a multi-polarized antenna for transmitting and/or receiving radio frequency (RF) signals, said antenna comprising:

at least two radiative antenna elements each having a first end and a second end, and wherein said second ends of said radiative antenna elements are electrically connected at an apex point and are each disposed outwardly away from said apex point at an acute angle relative to and on a first side of an imaginary plane intersecting said apex point; and an electrically conductive ground plane (Yamazaki, figure 1, antennas 2a and 2b, since the roof of the car made by metal therefore it can be used as the ground plane, and column 2, lines 38-51) located in the same plane as said imaginary plane or located spaced away from said imaginary plane on a second side of said imaginary plane which Yamazaki does not explicitly disclose. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a ground plane located in the same plane or spaced away from said imaginary

plane on a second side of said imaginary plane because the imaginary plane could be any plane which either perpendicular or parallel or adjacent to the ground plane.

Claim 2 adds into claim 1, further comprising a dielectric material serving to mechanically connect, at least in part, said radiative antenna elements to said ground plane while electrically insulating said radiative antenna elements from said ground plane (Yamazaki, column 2, lines 38-43).

Claim 3 adds into claim 2 further comprising an electrical conductor electrically connected to said radiative antenna elements at said apex point and extending away from said apex point toward a ground plane side of said antenna through said dielectric material to allow connection to a transmission line for interfacing said radiative antenna elements to a radio frequency transmitter and/or receiver (Yamazaki, column 3, lines 27-32).

Claim 4 adds into claim 1 further comprising an electrical connector to allow connection of said radiative antenna elements and said ground plane to a transmission line (Yamazaki, column 3, lines 27-32).

Claim 9 adds into claim 1, wherein each of said radiative antenna elements are substantially linear and have a physical length determined by a pre-defined radio frequency (Yamazaki, column 3, lines 27-32).

Claim 10 adds into claim 1, wherein said acute angle between each of said radiative antenna elements and said ground reference is between 1 degree and 89 degrees (Yamazaki, column 4, lines 7-16).

Claim 11 adds into claim 1, further comprising a mounting mechanism to allow

mounting of said antenna to another device or structure (Yamazaki, column 2, lines 38-47).

Claim 12 adds into claim 1, wherein said radiative antenna elements are equally spaced in angle circumferentially around 360 degrees which Yamazaki does not explicitly disclose. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have radiative antenna elements are equally spaced in angle circumferentially around 360 degrees the round ground plane.

Claims 13-16, 18-23, and 27 are similar in scope to claims 1-4, and 9-12; therefore, they are rejected for the same reason.

Claim 29 adds into claim 27, wherein spatial separation distance between any two adjacent antennas of said at least two antennas is between 2/3 of a wavelength and 3 wavelengths of a predetermined radio frequency carrier signal, more or less spacing is not as effective in gain but is effective in spatial diversity which Yamazaki teaches in column 3, line 27-column 4, line 16.

Claim 30 adds into claim 27, wherein said ground reference comprises a ground plane which Yamazaki teaches in figure 1, since the roof of the car made by metal therefore it can be used as the ground plane, and column 2, lines 38-51).

3. Claims 5-8, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over YAMAZAKI et al. (US 4253099) in view of VINSON et al. (US 6100855).

Claims 5-8, and similar claim 17, wherein said ground plane comprises a circular conductive ground plane having a radius, a length and width, a triangular conductive

ground plane having minimum distances from the center of the triangular conductive ground plane to the sides of the triangular conductive ground plane of at least 1/4 wavelength of a tuned radio frequency which Yamazaki does not explicitly disclose. However, Vinson teaches such ground plane is widely used in the art (Vinson, column 7, lines 8-13). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide Yamazaki's ground plane, as taught by Vinson doing so it would yield desired levels of performance of the ground plane.

4. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over YAMAZAKI et al. (US 4253099) in view of KLEINSCHMIDT (US 6714170 B2).

Claim 31 adds into claim 13, further comprising mechanically connecting a motor to said multi-polarized antenna to allow rotation of said multi-polarized antenna about a defined axis of said antenna which Yamazaki does not explicitly disclose. However, Kleinschmidt teach such motor is widely used in the art (Kleinschmidt, column 3, lines 5-17). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide Yamazaki's antenna system with the motor, as taught by Kleinschmidt in order to provide the rotation for the antenna.

Allowable Subject Matter

6. Claims 24-26 is allowed.

The following is an examiner's statement of reasons for allowance: the Prior art fails to teach that a parasitic conductive reflector positioned to said first side of said imaginary plane and away from said at least two radiative antenna elements.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

7. Claim 28 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the Prior art fails to teach that a parasitic conductive reflector positioned to said first side of said imaginary plane and away from said at least two radiative antenna elements.

Due to a new ground of rejection this action made NON-FINAL.

Inquiries

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Huedung Cao whose telephone number is (571) 272-1939.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong, can be reached on (571) 272-1834. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

9. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

March 16, 2006

TRINH DINH
PRIMARY EXAMINER